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ABSTRACT

Many teachers and other educators have expressed a concern regarding the lack of student interest in many of the traditional science courses. Concerns have also been expressed by teachers of their dissatisfaction with much of the lecture material and the laboratory exercises in some science classes. To help rectify this problem a collaborative effort among educators and others concerned has led to the development of instructional aids that are more relevant to the lives of students. This document is the result of one such effort that focuses on modernizing the undergraduate physical chemistry curriculum. The first several chapters of this book present broadly organized essays on the content and presentation of various topics. Through the content, background, and references of these chapters an instructor can become acquainted with the relevant literature. Each chapter also contains a section on specific lecture materials, specific problems that could be done outside of class, and general laboratory experiments appropriate for undergraduates who have not had access to research level equipment. Also included is a description of a consortium approach to laboratory development and an innovative writing program for physical chemistry students. The chapters are organized into the following sections: Today's Physical Chemistry Clasroom; Why Modernize the Laboratory?; Laser Experiments; Laser Experiments in Thermodynamics; Fluorescent Probes; A New Look at Classical Topics; Polymer Experiments; Incorporating Modern Instrumentation; Thermodynamics Experiments Without Lasers; and Try a Different Approach. Author, affiliation, and sugject indexes are attached. (ZWH/AA)

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